AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICES CURRENT.

" *O Fortunatos nimium sua si bona norint*
" *Agricolas.* . . . . VIRG.

VOL. I. BALTIMORE, FRIDAY, SEPTEMBER 3, 1819. NUM. 23.

AGRICULTURE.

Mr. Madison's Address.

AN ADDRESS delivered before the Agricultural Society of Albemarle, [Virginia,] on Tuesday, May 12, 1819. By Mr. MADISON, President of the Society.—[*Concluded from No. 22, page* 171.]

But it is a resource for re-fertilizing the soil, that the corn stock finds the proper place here; and as such it merits particular notice; whether it be passed through animals; or be prepared by fermentation in the farm yard; or be merely spread on the surface of the earth, the mode in which its effect must be least considerable. The same qualities which render every part of it nutricious to animals, render it nutricious to the earth, and it is accompanied with the peculiar advantages: 1, that the grain itself is mostly every where, and altogether, in places distant from navigation, consumed within the farms producing it; 2, that as the grain is in greater proportion to the space on which it grows, than most other grains, so the rest of the plant is in greater proportion to the grain, than the rest of any other grain plant. The straw and chaff of the smaller grains, as already remarked, is in weight but about one half the grain. The corn stock with all its appurtenant offal, is of not less than three times, and if taken early from the field, probably of not less than four or five times the weight of the grain belonging to it; 3, the fertilizing matter contained in the corn stock is greater, in proportion to its weight, than that contained in the straw and offal of other grains is to the weight of the straw and offal.

Would it be hazarding too much to say, that where a level surface, or the mode of cultivating a hilly one, prevents the rays from carrying off the soil, a restoration of an entire crop of Indian corn, in the form of manure, to the space producing it (there being no other intervening crop not so restored) would replace the fertility consumed by the crop, and maintain a perpetual productiveness? Reason, the case of forest and fallow fields, where the spontaneous crop falls back of itself, to the earth, and the Chinese example, where the cultivated crop is restored to the earth, all pronounce that such would be the effect. And yet the fact stares us in the face, that our most impoverished fields, even the most level of them, owe their condition more to the crops of Indian corn, than to any other crops.

The articles of fodder which are least neglected as a fund of manure, are timothy and clover hay. But the average quantities on farms are not as yet very great; and seldom yield more than stable manure for gardens and culinary crops.

The cotton plant, which is so extensive a crop, in the more Southern and the South-western States, is but little cultivated in Virginia, and scarcely at all in this part of it. I am not able to say how far it is comparatively an exhausting crop. But it would seem to be more capable than any other crop, not wholly consumed within the farm, of preserving its fertility. The only part of the plant carried away is the cotton fibre or woolly part, which bears an inconsiderable proportion to the other parts in weight, and as may be inferred, in fertilizing matter also. The seed alone, passing by the ball and the haulm, is three times its weight, and contains the chief part of the oil in the plant. In the countries where cotton makes the principal part of the crop, the superfluous seed must deserve great attention as a manure. Where the fields are level or cultivated in horizontal drills, it might go far towards supporting a continued cropping without a diminished fertility.

The sum of these remarks on cultivating poor land, and neglecting the means of keeping or making land rich, is, that if every thing grown on a soil is carried from it, it must become unproductive; that if every thing grown on it be directly or indirectly restored to it, it would not cease to be productive; and, consequently, that according to the degree in which the one or the other practice takes place, a farm must be impoverished or be permanently productive and profitable. Every acre made by an improved management to produce as much as two acres, is in fact the addition of a new acre, with the great advantages of contracting the space to be cultivated; and of shortening the distance of transportation between the fields and the barn or the farm yard. One of the Roman writers,* on husbandry, enforces the obligation to an improving management by a story of one Paridius who had two daughters and a vineyard: When the elder was married, he gave her a third part of the vineyard; notwithstanding which, he obtained from two thirds, the same crop as from the whole:—when his other daughter was married, he portioned her with the half of what remained, and still the produce of his vineyard was undiminished. The story, short as it is, contains a volume of instruction.

The plaster or gypsum, though not a manure within the farm itself, has been too long neglected as a fertilizing resource. It is now beginning to take a high and just rank as such. The proofs of its efficacy are as incontestible as the causes of it are obscure. The experiments of a very distinguished chemist,† led him to the opinion, that its substance enters into the substance of the plant. Without doubting the fact, it does not sufficiently account for the addition made to the size and weight of the plant, which greatly exceed the quantity of the plaster. It must, therefore, have some further mode of operating. Whether it be by neutralizing some noxious ingredient in the earth, one of the modes by which lime is supposed to operate, or by attracting and conveying to the plant, food from the earth, the air or water; or by exciting the plant to a more active use of its feeding powers, whatever they be; or by its accretion and assimilation to particular parts of plants on which these powers depend—thereby augmenting and strengthening those particular parts, and enabling the feeding powers to give proportional augmentation to every other part; whether by any one or more of these processes, or by some other or others distinct from them all, the growth of plants be promoted by this mineral, remains, it would seem, to be yet explained. In the mean time, a more extensive use of it, promises much advantage to our agriculture. I take it, however, that this advantage cannot be permanent without making the increased product of the soil, a source of manure to the soil. That the effect of the plaster will be continued indefinitely, under a constant removal of the whole crop from the soil, surpasses belief. It can scarcely fail to exhaust at length, the productive powers of the earth. The period of time necessary for the purpose, may be uncertain; but that as in the case of other mineral manures, lime and marl, such must sooner or later, be the result, cannot well be so. The effect of pulverizing the earth by tillage, as practised by Tull, is stated to have been uninterrupted crops of wheat, without manure, for more than twenty years; which was regarded as a demonstration, that tillage was a complete substitute for manure. Supposing the statement to be free from error, the inference is certainly not warranted by the fact. We know that some of our soils, not naturally richer than the highly manured soils on which Tull probably commenced his tillage, will bear a succession of crops for an equal period; and we know as well that their fertility will not hold out forever. How long plaster, whatever be its mode of operation, will hold out, may not yet have been fully tried.—But to make it permanently successful, it will be wise to take for granted, that it must be made a source of future manure, as well as of immediate productiveness. If the crop as augmented by the plaster, be given back to the soil, the soil may be benefitted more than it would be, by the return of a crop not augmented by the plaster. And in this way, fertility may be accelerated. The restoration of a crop

* Columella. † Sir H. Davy.

increased by ordinary cultivation, to the soil on which it grew, would, I presume, fertilize it more than the restoration of a smaller crop spontaneously produced; although in both cases, the whole taken from the soil would return to it.

IV. Among the means of aiding the productiveness of the soil, which have not received merited attention, is irrigation. In scarcely any country does this resource abound more than in the United States; nor is there any where so little sensibility to its value. The inconsiderable use made of it, is chiefly by emigrants, particularly Germans or the immediate descendants of them. I have understood that the market of Baltimore has been much benefitted in dry seasons, by the irrigation introduced by exiles from St. Domingo For a distinguished proof of the importance of the practice, I may refer to the fact which has been stated, that in the neigbourhood of Barcelona in Spain, where a part of the land is under irrigation, and a part is not susceptible of it, both being otherwise of equal fertility, the part irrigated is of double price in the market. It is to be noted indeed that the climate is a dry one, and that the article cultivated is Lucerne. But this is a plant, which though much aided in its growth by moisture, is at the same time remarkable for the length of a tap-root, and fitted by that, as well as by the absorben quality of its leaves, to flourish in a thirsty soil and warm climate. Our particular district of country, abounding in springs, small streams and suitable declivities, admits greatly of irrigation; and being generally of a thirsty nature, the more strongly invites the use of it.

V. I cannot but consider it as an error in our husbandry, that oxen are too little used in place of horses.

Every fair comparison of the expence of the two animals, favors a preference of the ox — But, the circumstance particularly recommending him is, that he can be supported when at work by grass and hay; whilst the horse requires grain, and much of it; and the grain generally given him is Indian corn, the crop which requires most labour and greatly exhausts the land.

From the best estimate I have been enabled to form, more than one half of the corn crop is consumed by horses, including the ungrown ones; and not less than one half, by other than pleasure horses. By getting free from this consumption, one half the labour and of the wear of the land would be saved, or rather more than one half; for on most farms, one half of the crop of corn grows on not more than two-fifths, and sometimes a smaller proportion of the cultivated fields; and the more fertile fields would of course be retained for cultivation. Every one can figure to himself the ease and conveniency of a revolution which would so much reduce the extent of his cornfields; and substitute for the labour bestowed on them, the more easy task of providing pasturage and hay.

But will not the ox himself when kept at labour require grain food as well as the horse. Certainly much less, if any. Judging from my own observation, I should say, that a plenty of good grass or good hay, will suffice without grain, where the labour is neither constant nor severe. But I feel entire confidence in saying, that a double set of oxen alternately at work, and therefore half the time at rest, might be kept in good plight without other food than a plenty of good grass or good hay. And as this double set would double the supply of beef, tallow and leather, a set off is found in that consideration for a double consumption of that kind of food.

The objections generally made to the ox are—1. That he is less tractable than the horse. 2. That he does not bear heat as well. 3. That he does not answer for the single plough used in our cornfields. 4. That he is slower in his movements. 5. That he is less fit for carrying the produce of the farm to market.

The first objection is certainly founded in mistake. Of the two animals, the ox is the more docile. In all countries where the ox is the ordinary draught animal, his docility is proverbial. His intractability, where it exists, has arisen from an occasional use of him only, with long and irregular intervals;—during which, the habit of discipline being broken, a new one is to be formed.

The second objection has as little foundation. The constitution of the ox accommodates itself, as readily as that of the horse, to different climates. Not only in ancient Greece and Italy but throughout Asia, as presented to us in ancient history, the ox and the plough are associated. At this day, in the warm parts of India and China, the ox, not the horse, is in the draught service. In every part of India, the ox always appears, even in the train of her armies —And in the hottest parts of the West Indies, the ox is employed in hauling the weighty produce to the sea ports. The mistake here, as in the former case, has arisen from the effect of an occasional employment only, with no other than green food. The fermentation of this in the animal heated by the weather, and fretted by the discipline, will readily account for his sinking under his exertions: when green food even, much less dry, with a sober habit of labour, would have no such tendency.

The third objection also, is not a solid one. The ox can, by a proper harness, be used singly as well as the horse, between the rows of Indian corn; and equally so used for other purposes. Experience may be safely appealed to on this point.

In the fourth place, it is alleged that he is slower in his movements. This is true; but in a less degree than is often taken for granted. Oxen that are well chosen for their form are not worked after the age of about eight years (the age at which they are best fitted for beef,) are not worked too many together, and are suitably matched, may be kept to nearly as quick a step as the horse. May I not say, a step quicker than that of many of the horses we see at work, who, on account of their age, or the leanness occasioned by the costliness of the food they require, lose the advantage where they migh have once had it?

The last objection has most weight. The ox is not as well adapted as the horse to the road service, especially for long trips. In common roads, which are often soft, and sometimes suddenly become so, the form of his foot and the shortness of his leg, are disadvantages; and on roads frozen or turnpiked, the roughness of the surface in the former case, and its hardness in both cases, are inconvenient to his cloven hoof. But where the distance to market is not great, where the varying state of the roads and of the weather, can be consulted; and where the road service is less in proportion to the farm service, the objection is almost deprived of its weight. In cases where it most applies, its weight is diminished by the consideration, that a much greater proportion of service on the farm may be done by oxen, than is now commonly done; and that the expence of shoeing them is little different from that of keeping horses shod. It is observable, that when oxen are worked on the farm, over rough frozen ground, they suffer so much from the want of shoes, however well fed they may be, that it is a proper subject for calculation, whether true economy does not require for them, that accommodation, even on the farm, as well as for the horses.

A more important calculation is, whether, in many situations, the general saving by substituting the ox for the horse, would not balance the expence of hiring a carriage of the produce to market. In the same scale with the hire, is to be put the value of the grass and hay consumed by the oxen; and in the other scale, the value of the corn, amounting to one half of the crop, and of the grass and hay consumed by the horses. Where the market is not distant, the value of the corn saved, would certainly pay for the carriage of the market portion of the crop, and balance, moreover, any difference between the value of the grass and hay consumed by oxen, and the value of the oxen when slaughtered for beef. In all these calculations, it is doubtless proper not to lose sight of the rule, that farmers ought to avoid paying others for doing what they can do for themselves. But the rule has its exceptions and the error, if it be committed, will not lie in departing from the rule, but in not selecting aright the cases which call for the departure. It may be remarked, that the rule ought to be more or less general, as there may, or may not be at hand, a market by which every produce of labour is convertible into money. In the old countries, this is much more the case, than in new; and in new, much more the case near towns, than at a distance from them. In this, as in most other parts of our country, a change of circumstances is taking place, which renders every thing raised on a farm more convertible into money than formerly; and as the change proceeds, it will be more and more a point for consideration, how far the labour in doing what

might be bought, could earn more in another way, than the amount of the purchase. Still it will always be prudent, for reasons which every experienced farmer will understand, to lean to the side of doing, rather than hiring or buying what may be wanted.

The mule seems to be in point of economy, between the ox and the horse, preferable to the latter, inferior to the former, but so well adapted to particular services, that he may find a proper place on many farms. He is liable to the objection which weighs most against the ox. He is less fitted than the horse for road service.

VI. A more manifest error in the husbandry of the older settlements is that of keeping too many neat cattle on the farms. As a farm should not be cultivated farther than it can be continued in good heart, the stock of cattle should not be in greater number than the resources of food will keep in good plight. If a poor farm be unprofitable, so are poor cattle. It is particularly the case with the milch cows. When the whole of the food given them is necessary to support a lean existence, no part can be spared for the milch pail The same food given to the proper number, will not only keep them in a thrifty state, but enable them to supply the dairy. Even the manure from several poor cattle is worth less than that from a single fat one. The remark holds equally good with respect to the hide.

The misjudged practice in question, is another effect of inattention to the change of circumstances through which our country has passed.—Originally the forest abounded in rich herbage which fed and fatted, without expence, all the cattle that could be brought through the winter into the spring. It was natural, at that time, to keep as large a stock as could be preserved through the winter. For a long time past, the forest is scarcely any where, a resource for more than two or three months, and in many places, no resource at all. A greater difficulty is often felt in finding summer, than winter subsistence. And yet, where no inclosed pasturage is provided to take the place of the extinct one in the forest, the habit, founded in reasons which have entirely ceased, is but too generally retained.—The same number of cattle is aimed at, as if the forest was as ready to receive and fatten them now, as formerly. The size and appearance of our neat cattle, compared with those for which nature or good husbandry has provided sufficient food, are proofs that their food is not in proportion to their number; and that, where the food cannot be increased, the number ought to be reduced.

VII. Of all the errors in our rural economy, none is perhaps so much to be regretted, because none is so difficult to be repaired, as the injudicious and excessive destruction of timber and fire wood. It seems never to have occurred that the fund was not inexhaustable, and that a crop of trees could not be raised as quickly as one of wheat or corn.

Here again, we are presented with a proof of the continuance of the practice for which the reasons have ceased. When our ancestors arrived, they found the trees of the forest the great obstacle to their settlement, and cultivation.—The great effort was of course to destroy the trees. It would seem that they contracted and transmitted an antiphathy to them; for the trees were not even spared around the dwellings where their shade would have been a comfort and their beauty an ornament; and it is of late years only, that these advantages have been attended to. In fact, such has been the inconsiderate and indiscriminate use of the axe, that this country is beginning to feel the calamity as much as some of the old countries of Europe;—and it will soon be forced to understand the difficulty of curing it. A vast proportion of the farms on the eastern side of the Blue Ridge, and some even on the other side, have but a scanty fund for present use, and are without a fund for permanent use. And to increase the evil, the remnant of timber and fuel on many farms, inadequate as it is, is left in situations remote from the dwelling, and incapable of being divided according to the divisions and sub-divisions into which all the large farms must be rapidly forced by the law of descendents, the impulses of parental affection, and other causes.

It is high time for many farmers, even in this quarter, and still more so in the country below us, to take this subject into serious consideration—Prudence will no longer delay to economize what remains of wood land; to foster the second growths, where taking place in convenient spots—and to commence, when necessary, plantations of the trees recommended by their utility and quickness of growth.

I wish I could more satisfactorily estimate the proportion of wood land which ought to belong to every farm, as a permanent fund of timber for building and repairing houses; for fences, where live or stone ones may not have been introduced; for wheel carriages and the other apparatus needed on farms. The estimate is the more difficult, because it must be varied to many circumstances: particularly, according to the nature of the soil and the kind of trees at once suited to it, and to the uses to be made of them.

Estimating the crop of wood yielded by an acre at twenty cords, the period of reproduction at twenty years, and the average number of cords annually consumed at a fire place, including the culinary consumption, at ten cords; every fire place on a farm will require ten acres for a permanent supply of fuel. For the other necessities of the farm, several acres more ought to be added.

An estimate in a very sensible publication, entitled "The New England Farmer," makes seventeen acres necessary for a fire place The winters there are longer, and the climate may be less favourable to the quick growth of trees.—But their houses are generally closer than with us: to say nothing of a more judicious management than can be enforced on most of our farms.

To this catalogue of errors in our rural economy, considerable as it is, many, I fear might be added, The task of pointing them out, I gladly leave to others, less incapable than I have shewn myself to be, by the very imperfect manner in which I have performed the one on which I ventured.

From the American Practical Gardener, published by Fielding Lucas, jun.

For the Month of September.

Wall and Espalier Trees.

Where there are any straggling branches of these trees, train them in, and fasten them firmly in their places.

The early kinds, attached to the walls of the forcing house, should towards the end of this month, be pruned and trained close to the trellis, that their buds may be prepared, as early as possible, for the application of the artificial heat.

Gathering Fruit.

Gather apples and pears when they are perfectly ripe on a dry day—

Prepare for planting.

Towards the end of this month, prepare the places in which fruit trees are to be planted, in October or November, by trenching the ground, eighteen inches deep, adding a full supply of well rotted manure.

Strawberries.

There are six principal varieties of the *Fragaria*, or strawberry, cultivated in gardens. 1. Fragaria Virginianna, common wood, or scarlet strawberry. 2. Hautboy strawberry. 3. The Chili strawberry. 4. Alpina, alpine or monthly strawberry. 5. F. Ananas, or pine apple strawberry. 6. The white strawberry.

In the cultivation of strawberries, much depends on the choice of plants, for if they are taken promiscuously, without care in selecting them, you will in a short time have all male plants. The Hautboy strawberry, is more subject to this than any of the other kinds. The plants should therefore be taken from the most fruitful ones, and the runners especially, which shoot from, and are next to the bearing plants, should always be preferred. Endeavour therefore to make yourselves acquainted with the difference between the male and female parts of this plant, as many of the blossoms abound with stamina, or male organs, and have but few styles, or female organs; these male plants of course ought to be pulled up from the beds, by this means you may select the best for your new plantation. The plants should never be taken from old neglected beds, as these will almost always fail to produce much fruit.

In general, this plant loves a strong loamy ground: which should be somewhat moist, as they thrive best in such a soil.

When the weather is moist, make your general plantations of strawberries. The sets of young runners next the full bearing vines should be taken off in June, and planted in nurseries, for this purpose, and when transplanted into their beds for fruiting, the roots should be trimmed and the decayed leaves and runners (if there be any) picked off.

The ground should be previously well manured and dug, then laid out into beds of three and a half feet wide for convenience, with alleys of fifteen inches between. The roots are to be planted in rows. Close the earth about each root, and water them plentifully, when finished.

Keep the old strawberry beds clean from weeds.

Collecting Ripe Fruit.

Such apples and pears, as have attained to full maturity, must be gathered in a dry day, wipe them well and lay them carefully by.

When it is intended to plant fruit trees in October and November, the ground must be now prepared, as before directed.

General Observations.

Take every opportunity with the hoe, in dry weather, to clean out all the weeds from the seed-beds and young trees, shrubs, &c; hand-weed, where necessary, continue to water regularly all the plants in pots or boxes, also the new planted flowers, when the weather is dry.

Towards the latter end of the month, begin to set in pots singly the young tender plants, which were raised from seed this year; place them in the shade for about three weeks, until they are newly rooted; after which, place them in a warm exposure, till the

approach of frost, when they must be removed into the green-house.

Embrace every leasure moment, to dig and prepare all vacant places, in which fruit tree stocks, trees, or shrubs are to be planted in October or November.

Budding or Inoculating.

Continue to inoculate peaches, nectarines, and almonds.

Untie the bandages of such plants, as have been budded three or four weeks,

Propagating Trees, and Shrubs, by Cuttings and Layers.

Begin in the last week of this month, to propagate goosberries, currants, honey suckles, and several other hardy trees and shrubs, by cuttings; plant them in shady borders. However, this is better done in October; for wood imperfectly ripened, when cut off and planted in this month, seldom can bear the heat of the sun in our climates, unless it is, for some time after, screened therefrom.

The general propagation by layers, may be commenced towards the latter end of this month. As before directed.

Fruit Stones.

Peach, plum, cherry stones, &c, may now be planted, as before directed.

Trimming Pines and Firs.

Where pines, firs, and other resinous trees, require some of their branches cut off, this is the best time in the year, for trimming them, as they are not so apt to weep now, as in the spring, and their wounds will have time to heel before winter.

Walnut trees, and maples should also be trimmed at this season, for the reasons above mentioned.

General Remarks.

All beds, borders, &c. are to be kept clean from weeds, and neatly raked. The digging of vacant beds, and borders, to be attened to, for planting bulbous roots, and the biennial and perennial fibrous rooted flowers. Collect all such seed, as may now be ripe.

Prepare now at all leisure hours, the different beds, borders, and composts, for the plantations of choice tulips, hyacynths, anemonies, ranunculuses, and other flower roots, which are to be set out next month; also for the flowering shrubs, that no business may be unnecessarily hurried or slighted.

Pinks and Carnations.

The layers of Pinks and Carnations, as well as the pipings, which are well rooted, not before taken from their parent stock, may now be separated, and planted out in pots or borders.

The seedling pinks and carnations may now be planted out, where they are intended to remain; take each plant up with a ball of earth, and give it some water, after setting it in the ground.

Chrysanthemums.

In the beginning or middle of the month, plant cuttings or slips of the young shoots, five or six inches long, of some of the best double sorts, planting several together in large pots, to be protected through the winter; they will strike root, and form proper plants, to transplant for early flowering next summer.

Auriculas.

The Auricula plants require the same attention, as heretofore directed; protected from the mid-day sun, moderately watered, &c. Particular care must be taken to keep both the seedlings, and the other auricula plants, free from weeds of every kind, to keep the earth in which they are planted, in a moderate state of moisture state of moisture, that the plants may grow freely, and obtain strength before winter.

Ranunculus Aconitifolius.

The double flowering variety of the aconite-leaved crowfoot, or fair maid of france, is greatly esteemed for the delicate beauty of its numerous flowers. It is perfectly hardy. The flowers are a pure white, and very double; the root is perennial, and composed of many strong fleshy fibres, like that of the garden ranunculus, and increasing in the same manner.

This beautiful plant flowers in the latter end of May, and beginning of June, and may be propagated by taking up the roots, at any time after the leaves decay, separating the off-sets, carefully preserving the crown unhurt, and planting them in good garden earth, covering the crown about two inches with earth. If planted in pots, they will require some protection, and but little water, in winter. This plant has a beautiful appearance, when in flower, in rooms and windows, as well as in borders and beds.

Sow Seeds of Bulbous Roots.

The seeds of hyacinths, tulips, and other bulbs, may now be sown, as directed in last month.

Hardy Annuals.

Larkspurs; persicaria, adonis, &c. may be sown, in borders, the latter end of the month, to come up early in the spring, in the places where they are to remain.

Transplant Biennial and Perennial Flower Roots.

The various kinds of Biennial and Perennial seedlings may be planted out, the latter end of this month. from the flower nursery, into the borders, &c. where they are designed to bloom.

Also plant out double catch fly, pinks, London pride, dracocephalums, sweet-william, thrift, scarlet lychnis, double rose campion, double rocket, and every other kind of hardy fibrous rooted perennials, that are past bloom.

Cut down decayed stock of perennials, and if they are not to be transplanted, bring some well rotted dung to the borders, and dig the ground about them, which will refresh and stengthen their roots.

Planting Bulbous Roots.

Spring crocuses, snowdops, fritillarias, the various kinds of Irises, scarlet martagons, white and red lilies, crown imperials, (for the method of planting these last, see directions as before given) as well as all other flower bulbs, which do not agree with being kept long out of the ground, should now be planted.

Common tulips, hyacynths, narcissus, and other hardy spring flowering bulbs in general, may now be planted in borders, &c. in small clusters, four or five in a place, covering the roots four or five inches deep with light loose earth.

Tuberous rooted flowering Plants.

Pœonias, flag irises, winter aconite, &c. may now be propagated by slipping their roots.

Hydrangia Hortensis.

The garden Hydrangia, a beautiful flowering plant, may now be taken out of the old pot, its slips taken off, and all re-planted again in pots, and protected in the green-house, or other shelter, through the winter.

Double Daisies.

Some of the choicest of these modest little flowers, may be taken up, with balls of earth to their roots, planted in small pots; water them immediately, and screen them from the sun, for a week or two, afterwards place them in a warm exposure till November.

General Observations.

If the roof lights had, in the course of the summer, been taken off any of the hot house departments, they should be re-placed early in this month, and all the wood and glass work put in the best possible repair.

Give a complete and thorough cleaning, painting, and whitewashing, to every part of the house; and if infested with insects, fumigate it effectually. Wash the inside entirely with a very strong solution of corrosive sublimate, clean every particle of old bark out of the pots, carry it off to a considerable distance, and replace it with fresh tan, the plants remaining in this department, while this is performing, should be thoroughly washed and cleaned, before they are replaced.

This cleansing, fumigating, &c. will destroy most, if not all the lurking insects, which have taken shelter in different parts of the house.

Taking in the Plants.

The more tender kinds of house exoticks, which are arranged out of doors, should in the middle states, be taken into the green house, about the tenth of this month, and the others successively, so that the whole collection may be in by the eighteenth or twentieth, or a few days earlier, should the weather happen to be cold, here they are to remain, closing the windows at night, giving them all the air possible in mild days, till towards the end of the month or sooner, if you have the hot house ready for their reception.

When plants are placed in order in their winter quarters, give them a plenty of air every favourable day, by sliding open the upright glasses, and also the roof lights if necessary; for the fresh bottom heat will give new action to the plants, and render an abundance of air highly requisite; observe, however, to close the lights early every evening, and to open them as early in the morning, as the thermometer rises to sixty degrees, Fahrenheit.

Succession Pines, Crowns, and Suckers.

The crowns, and suckers, of this year's production, may be placed in a dung hot-bead, and managed as directed for cucumbers, in January. When the nights begin to grow cold, cover the glasses, carefully with mats, and be very cautious not to keep your lights close, in sunny days.

Your succession pines, which are removed into the hot house, should have plenty of air at this season, which, with a moderate and steady bottom heat, will keep them in a growing and prosperous state.

Procuring Fresh Tan.

Procure a quantity of fresh tan, for the purpose of making new beds, in the next month. When the tan is brought home, it will be proper to throw it up in a heap to drain and ferment, for ten or twelve days, before it is put into the pits. But if it is very wet, as is commonly the case, when thrown up out of the tan vats, it should be spread thinly, for two or three days, that the sun and air may exhale the superabundant moisture, for if used too wet, it would be a long time before it would acquire a sufficient degree of heat.

Prepare Compost.

Prepare the compost proper for pines, as before described.

For the most of the shrubs and herbaceous plants of the hot house, prepare equal parts of good light garden earth, and mellow surface loam, from a rich pasture ground, with the turf; add to these a fourth of very well rotted hot-bed dung; let the whole be duly incorporated, and exposed to the weather, several months, before it is used, turning the heap over every four or five weeks.

FROM THE ALBANY ARGUS.

Treatise on Agriculture.

SECTION V.

Of Practical Agriculture and its necessary Instruments.

[Continued from No. 22—page 172.]

We begin this part of our subject with a few remarks on the instruments necessary to agriculture, which may be comprised under the well known names of the plough, the harrow, the roller, the threshing machine and the fanning mill.

1st. of the plough:

It is among the inscrutable dispensations of Providence, that the arts most useful to man, have been of later discovery—of slower growth, and of less marked improvement, than those that aimed only at his destruction. At a time, when the phalanx and the legion were invented and perfected, and when the instruments they employed were various and powerful, those of agriculture, continued to be few, and simple, and inefficient.

Of the Greek plough, we know nothing; and the general disuse of that described by Virgil and Pliny, furnishes a degree of evidence, that experience has found it incompe-

ient to its objects. With even the boasted lights of modern knowlege, scientific men are not agreed upon the form and proportion, most proper for this instrument. As in other cases, so in this, there may be no *abstract perfection*; what is best in one description of soil, may not be so in another; yet, as in all soils, the office of the plough is the same, viz. to *cleave* and *turn over the earth*, there cannot but be some definite shape and proportions, better fitted for these purposes, and at the same time less susceptible of resistance, than any other.

This beau ideal, this supposititous excellence, in the mechanism of a plough, has been the object of great national, as well as individual research. In Great Britain, high prizes have been established for its attainment; and in France, under the ministry of Chaptal. 10,000 francs, or $2000 were offered for this object, by the agricultural society of Seine. In both countries, the subject has employed many able pens; those of lord Kaims, of Mr. Young, of Mr. Arburthnot, of lord Somerville, and of Messieurs Duhamel, Chateauvieux, Bose, Guillaume, &c. It is not for us, therefore, to do more than assemble and present such rules for the construction of this instrument, as have almost attained the authority of maxims.

1*st* The *beam*, or that part of the plough which carries the coulter, and furnishes the point of draft, should be as near that of resistance as possible; because these are approached, the less is the moving power required. Even the shape of the beam is not a matter of indifference. In the old ploughs, it was generally straight, but a small curve is now preferred; because it has the effect of strengthening the coulter, by shortening it.

2*d*. The *head* of the plough, is the plain on which it moves. This should be concave, because that form offers fewer points of friction, and, of course, less resistance. Between the beam and the head, is an angle, on which depends the principal office of the plough; the making, at will, a deep or shallow furrow. If you wish a deep furrow, diminish the angle, and vice versa: but this angle should, in no case, exceed from 18 to 24 degrees.

The resistance made to the plough being produced less by the weight of the earth, than by the cohesion of its parts, it is evident, that the head should be shod with iron, and rendered as smooth as possible. This remark applies equally to the soc and to the mould board.

3*d*. The *soc* in its widest part, should be larger than the head. It has different shapes in different countries. In some they give it that of an isosceles triangle: in others, that of the head of a lance; in Biscay, a crescent; and in Poland, a two pronged fork. But, whatever be its shape, it should be well pointed and polished—enter the earth with facility, and cut it easily.

4*th*. To the *mould board*, some workmen give the shape of a prismatic wedge: others make the upper part convex, and the lower concave; while many make it entirely flat. In stiff soils, the *semi cycloid* is the form to be preferred, and in loose friable soils, the *semi ellipsis**. The iron mould boards have great advantages over the wooden, particularly when they, the shear and the soc, form one piece, as in the ploughs of Mr. Cook.

It is a general opinion, that a heavy plough is more disadvantageous than a light one; because the draft of the former, being greater, will be more fatiguing to the cattle; but the experiments of the agricultural society in London, establish a contrary doctrine, and show, that in light grounds, the labour is more easily and better performed, with a heavy, than with a light plough.

5*th* The *Colter* is a species of knife inserted in the beam, and so placed before the soc, as to cut the sod. It is susceptible of being raised or depressed at will.

6*th*. The handles of the plough, ought to be made of some kind of heavy wood, that they may operate as a counter weight to the head, the soc and the mould-board.

To these remarks we subjoin two sets of experiments, made with the most approved French and English ploughs—that of Guillaume, and Small's *Fotheram plough improved*, which furnishes a means of comparison between the best plough of Europe and those of this country.

The resistance (stated in these tables) was measured and ascertained by a *dynanometer*, a machine, indispensible to those who would make correct observations on the relative advantages of different ploughs.

The French plough. Resistance in pounds.		*The English plough.* Resistance in pounds.	
1st experiment	200	1st experiment	360
2d do.	240	2d do.	380
3d do.	200	3d do.	480
4th do.	220	4th do.	460
5th do.	220	5th do.	400
		6th do.	400
Divided by 5)	1080	7th do.	420
		8th do.	386
Average,	216	9th do.	440
		Divided by 9)	3726
		Average,	414

II. *The harrow.* This is of different kinds—the triangular and the square, the single and the double. But of whatever form, its uses are the same; to smooth the field after ploughing, to break and pulverize the clods and to cover the seed.—These uses, sufficiently indicate the propriety of employing two, in succession; one of heavy frame with few and long teeth, like the Scotch brake; the other, of lighter construction, with more and shorter teeth. Our own experience leads us to believe that the common harrow covers the seed too much, because small seeds will not vegetate at a depth greater than three inches.

III. *The roller*, is a cylinder of heavy wood, turning on gudgeons, or an axle, and placed in a frame, to which is attached a shaft; it is of different dimensions, but need not exceed that which may be drawn by one, or at most by two oxen. This instrument is indispensible in good husbandry, yet is rarely used in ours. Its offices are three-fold—to render loose soils more compact; to break the clod on stiff ones, and on both, to compress the earth (after seeding) so that it be every where brought in contact with the grain. It is also usefully employed in reinstating the roots of meadow grasses, loosened and raised by the alternate freezing and thawing of the ground, and, with a similar view, may be passed over winter crops early in the spring.

Its clod breaking and pulverizing property is much increased, by surrounding the roller with narrow bands of iron, two inches broad, three inches thick, and six inches asunder; or by studding it with iron points, resembling harrow teeth, and projecting three or four inches.

IV. *The threshing machine* is of English invention, and may be well enough adapted to the taste and circumstances, of rich amateurs, but not at all to those of farmers in general. Our objections to it are three,—the first cost, which is great, the quantum of moving power employed, which is equal to that of six horses, and the number of hands required to attend it, which is not less than four. We have seen, in France, a machine for the same purpose, but of much simpler structure—called the "*rouleau de de-piquer*," which is only a *fluted cylinder*, yet simple and cheap as this was, it could not maintain itself against the more ancient instruments—the flail and the horse. Still it is to be hoped that new experiments may succeed better and abridge the manual labour usually given to this branch of husbandry, and, that the mechanical genius of our own country (which is not inferior to that of auy other) may be the first to combine *power* and *cheapness* in this machine.

This hope is probably suggested by the description of a new invented threshing machine, now before me, and which may be permitted to transcribe from the letter of the inventor. "The machine I have built, is three feet wide. One horse will thresh, with much ease, as much wheat as can be laid on it by one man, (the straw to be taken away by another,) say, from *fifty* to *one hundred bushels in a day*, and the saving of grain will pay for the labour; for, I think, that with good attendance, not a particle of grain can escape with the straw. The expense of the machine will be from *fifty* to *seventy dollars*, exclusive of the moving power, which is a wheel, about ten feet in diameter, on an upright shaft, to which a lever is fixed to hitch the horse. Into this main wheel, a small one should be made to work, about two feet diameter on a shaft carrying a drum, four feet wide. With this simple gearing, and drawn by a horse that walks well, the machine will give about eighteen hundred strokes in a minute, and if fully attended, will, without hard labour for the horse, thresh *a bushel every three or four minutes*. It stands in my barn, and may be seen and examined by any one."*

V. *The Fanning Mill:* Other things being equal, the cleanest wheat is most easily preserved, and on manufacture, gives the best

* See Arbuthnot on ploughs.

* Mr. L. M'Keen, Poughkeepsie.

flour and in the largest quantity. These considerations offer inducement enough for the employment of this machine, which, however, besides doing its business well, saves a great deal of time. It is too well known to require description.

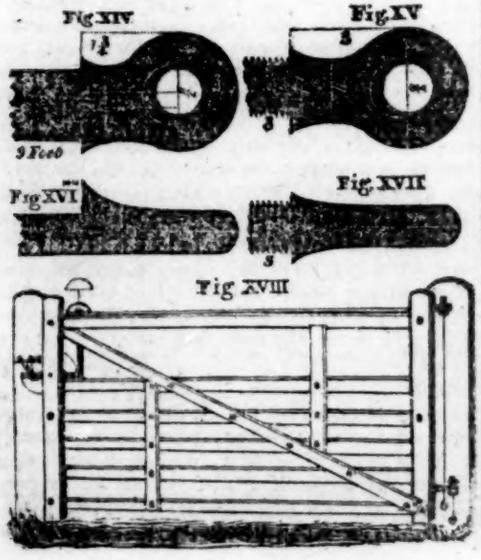
The true theory of making and hanging gates exemplified by Thomas N. Parker, M. A. London,— 1804.

All those who have travelled through Maryland and Virginia, must have been disgusted with the great number of heavy, ill constructed, and unwieldy *Gates*, which arrest the traveller and obstruct his progress at every half mile.

The more numerous divisions of real estates, and the increasing scarcity of timber, for fencing, must add to the present number of gates, which now probably average one for every fifty acres of arable land. The reader, therefore, who might otherwise regard it as an odd subject for remark, will at once see how far the true principles and economy of *Gate making* is worthy of elucidation in a journal like this, the main object of which is to suggest the best means of performing every agricultural operation, and to point out whatever may have a tendency to promote the saving of time, labour and materials.

We find the subject treated very fully and clearly, in an ESSAY ON THE CONSTRUCTION, HANGING AND FASTENING OF GATES, exemplified in six quarto Plates—by *Thomas N. Parker*—printed in London, in 1804—from which we here extract what appears most particularly applicable to the common swing gates used in our country.

It would be impossible to construct any thing with more entire disregard to the science of the thing, than the gates which we usually meet with, without any rational *proportion* in the weight of their several parts, and without any rule whatever for *hanging* them. We generally find them dragging on the ground two or three feet before they strike the post, or falling against it with such violence, as to shatter every joint in a few months; the farmer, not dreaming that all its movements may be adjusted with perfect accuracy and minuteness, by the regulation of the hooks and thimbles, and that the difference of a quarter of an inch in the length of the one or the other, makes an immense difference in the fall of the gate; and of course in its efficacy and durability, and consequently in the security of his crops, and the saving of his own time and labour. In other words, his *money* and his reputation as a farmer.



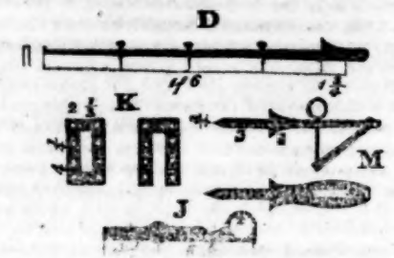


FIG. XIV—Is the upper thimble adapted for a gate opening one way; with an iron strap which is to fasten with screws along the top of the gate, either 1½ foot long only, and furnished with a staple at the small end as at D. or made to extend the whole length of the gate, and finish with a round screw nut let into the fore part of the head of the gate, as at FIG. XVIII; the thimble being bent ¼ of an inch bearing towards the hanging post. D represents the usual method of attaching the upper thimble to a short strap to be fastened on the top rail of the gate, with nails or screws and bent upwards at the small end to catch under a staple: this strap answers very well for an ordinary gate, and strengthens the mortise at the heel but that at the head of the gate is very little assisted by this short strap at the heel.

FIG. XV—Is the lower thimble of a gate proportioned to the upper thimble, *fig.* xiv. as 1¼ inch is to 3 inches, in regard to the distance between their centres and shoulders respectively. These thimbles are adapted for a gate whose hinges are 40 inches asunder; and as 40 is to 1¼, the difference in this instance, so should be any other distance from hinge to hinge to the proportionate difference or extra length of the lower thimble; and the greater the extra length might be made, over and above such proportion, the greater must become the velocity of the gate's fall, or tendency towards the line of rest, until its course is arrested by the fastening post 1-16 part of the circle, or 22 deg. 30 min. short of the line of rest. The lower thimble is let into the gate by a screw of equal substance throughout its length, or not tapered, in order that the adjustment of the thimbles, as to the velocity of the gate's fall, may be regulated to so great a nicety as half a turn of the screw: and the thimble may either be let into the heel of the gate, or lengthened out by a washer, as occasion shall require. The position of the thimbles, in respect to each other, must be favoured also the lower thimble, being placed ¼ of an inch out of the middle of the heel of the gate, in the contrary direction of the upper thimble, the whole difference, as to the distances of the two thimbles from the hanging-post, will be ½ of an inch, and their vertical plane, which is the same as that of the lines of rest and equilibrium, will form an angle with the line of fastening of 22 deg. 30 min. or 1-16 part of a circle: this adjustment, in effect, adds 1-12th of an inch to the extra length of the lower thimble, so that by a plumb-line, it will be found (when the gate is hung upright, as it always ought to be) that the actual extra length of the lower thimble, or horizontal distance of the two centres from each other, will be 1¼+1 1-12=1⅜ inch.

FIG. XVI—Represents the side view of FIG. XIV.

FIG. XVII—Gives the side view of FIG. XV.

FIG. XVIII—Is a complete gate for opening one way, and constructed in such a manner, that it shall not sink at the head, as ordinary gates are apt to do. The bars are let into the middle parts of the head and heel, and the braces are tapered for finishing upon a level surface with the heel, head, and rail, as is evident, in the following directions for the sawing out of the timber, which should be kind oak, not too tough, and entirely free from sap.

The waste in planing and finishing a gate may be allowed for, or not, as the gate is desired to be a little more or less strong: but when the timber is good, it is reduced so little by being planed, and finished into a gate, that no allowance need be made for waste; or, at all events, if the sawyer attends to the dimensions recommended, the gate will be quite strong enough for its size.

Directions for sawing the Timber for the Gate.

FIG. XVIII.

	Length. f. in.	Greatest thickness. in. by in.	Tapered to the head. in. by in.	Solid contents. cubic in.
Heel	4 4..4½	3½		= 832
Head	4 4..2½	2½		= 325
Rail	9 0..3½	2½		= 972
5 Bars each	9 0..3½	2½		= 1417½
Diagon Brace,	9 6..3½	1½	2½ 1	= 427½
Larger upright Brace	2 8	3½ 1¼		= 250
Smaller do.	2 8	3 1¼		
				4224

which will be found to form a well-proportioned gate, the whole of the eight parts of the head presenting to the eye 2½ inches; and seven out of the eight parts at the heel, that is, all excepting the heel itself, present 3½ inches. Its solid contents of timber is 4224 cubic inches = 2 feet 5⅛ inches, or nearly 2½ cubic feet.

The diagonal brace is fitted into the heel by a strong butment, even with the lowest bar, and its smaller end meets the upper angle at the head, and is confined laterally by two upright braces; which would keep up the rail, provided the head were not pushed forward; and that is prevented by an iron strap of equal length to the gate being attached to, or forming a part of the upper thimble in the first instance, where it holds the heel of the gate by the shoulder of the thimble: it is afterwards screwed to the rail at proper distances; and, lastly, secures the whole work together by a screw nut, rounded and let into the front of the gate's head.* By this arrangement, the gate is in fact suspended by an iron strap and rail, instead of the heel, which assists greatly in preventing any strain upon the mortises by the gate's own weight or otherwise. I cannot imagine a gate of a more durable construction, and it seems particularly well calculated for road-gates. The fastening is remarkably easy for a horseman to open, and is difficult, if not impossible, to be opened by cattle: the upright wire of the latch is furnished with a guard, and the mortise of the head of the gate through which the latch passes is finished with sheet-iron escutcheons, like those at *K*, the fastening being completed with the catch *M*, having a button in the place of the ring. *J* represents a cast iron latch which has been proved extremely well for the drop catches. I rode a horse that was very powerful and impetuous several times against a gate fastened with this cast metal catch; which was giving the catch as hard a trial as could be desired: and I am confident that the gate must have given way

---

* The iron strap is about an inch by a quarter of an inch in substance, for one half of its length, when it is tapered towards the head of the gate. At the end nearest to the thimble, it is made stronger for a few inches; and close to the shoulder of the thimble, it should be about an half inch square: the edges are chamfered off, and the whole appears to be gradually tapered from the heel to the head of the gate, widening a little round the hole which is left for the upright part of the latch adjoining to the handle.

In the preceding edition of this pamphlet, I acknowledge myself indebted to an ingenious mechanic for this pattern of a gate, with regard to the contrivance of the braces and iron strap for upholding the rail; and since this plan of constructing a gate is become so deservedly approved of, it may be proper for me to add, that I received it from Mr. John Baddely of Brighton, near Wolverhampton.

sooner than the latch. This latch weighs about 2 lbs., and is worth 7½ *d.* exclusive of the sheet iron escutcheons.

If it were wished to make a larger gate of this pattern; let the above column of lengths be altered accordingly; but the column of greatest thickness, and that of the sizes to which the parts are to be tapered, may remain as they are: supposing the gate is to be 9½ or 10 feet long, instead of 9 feet, then add about half of what the length of the gate is increased to the lengths of the head and heel, with as much as is wanting to the braces, and the gate will be in a good form, the rails and bars being of course cut out to the new length.

All road gates and gate-posts should be painted white, otherwise they will be frequently broken in dark nights by horses and carriages being run against them.

It appears by calculalation, that the contents of solid timber in the gate, FIG. XVIII, and the quantity of sawing (which is the superficies of its parts measured separately,) are exactly

Solid contents.		Sawing.	
Feet.	*In.*	*Feet.*	*In.*
2	5⅛	31	11½

Allowance must be made for waste of timber by every cut of the saw, which is equal to the quantity of saw dust; and the measure of sawyer's work in a gate depends a great deal upon the size of the timber, and how far the slabs and other pieces which are unfit for gates may be convertible to different purposes*.

When the hinges of gates are more or less than 40 inches asunder, the new position of the hooks may be found by the following TABLE

Distance of the two hinges or pivots of a gate's suspension.	Horizontal distance of two perpendicular lines, one falling from the centre of each of the hooks.	Distance of the two hinges or pivots of a gate's suspension.	Horizontal distance of two perpendicular lines, one falling from the centre of each of the hooks.	Distance of the two hinges or pivots of a gate's suspension.	Horizontal distance of two perpendicular lines, one falling from the centre of each of the hooks.	Distance of the two hinges or pivots of a gate's suspension.	Horizontal distance of two perpendicular lines, one falling from the centre of each of the hooks.
11		24*		38		51	
12	⅛	25	¾	39	1 1-6	52	1 7-12
13		26				53	
		27		40*		54	1 2-3
14		28		41		55	
15	5-12	29	5-6	42	1¼	56*	
16*		30		43		57	1¾
17	½	31	11-12	44		58	
18		32		45	1⅓	59	
19		33		46		60	1 5-6
20	7-12	34	1	47	1 5 12	81	
21		35		48		62	
22		36		49		63	1 11-12
23	⅜	37	1-12	50	1½	64*	2

Those numbers denoting the distance of the hinge which are marked with an asterisk, are precisely proportioned to the horizontal distance of the lines falling from the hooks, for as 40 : 1¼ : : 32 : 1, &c. and the intermediate numbers are nearly enough calculated, but as 40 : 1⅛ : : 41 : 1, and a further fraction, 42 to a still greater sum, but not amounting to 1-12 inch difference till the distance of the hinges becomes 43 inches: and the same will apply to other parts of the table.

The accuracy of these calculations may be tried in various ways: suppose a gate to be 110 inches long, and that it is intended to rise at the head 6 7-8 inches, in its semicircular course from the line of rest to the line of equilibrium, then *as the length of the gate is to the distance between the two hinges, so will be* 6 7-8 *inches to double the horizontal distance of two perpendicular lines, one falling from each of the hooks.*

Take any other distance of the hinges from each other, and the required extra length of the lower thimble may be found, by placing the numbers 110 and 6 7-8 as the first and second terms of a rule of three proportion, and the new distance of the hinges must be the third term; the answer divided by two will be the sought for horizontal distance of the two perpendicular lines falling from the hooks: and as the extra length of the lower thimble should always be the same as the horizontal distance of the perpendicular lines falling from the hooks [adding the loss in hanging the gate] the answer for the one is the measure for the other.

* In making accurate calculations, it is as well to give the precise amount as to omit the fractions, but to measure the bulk and superficies of the parts of this gate, tapered as they are, is rather tedious and troublesome; I trust and believe, however, that I have drawn correct conclusions, and since many gentlemen are apt to neglect their gates as well as other repairs and improvements, for want of properly understanding the nature and extent of the work required, I hope that, in the attempt to remove such obstacles, as to this subject, I shall not be thought to have misapplied either my own time, or trespassed unnecessarily upon that of my readers.

For the American Farmer.

Agricultural Chemistry.

No. I.

The great Linnæus has almost given animal life to vegetables, by his wonderful system of classification, and the eccentric Darwin, would fain give them passions like human nature; but it has been reserved for modern Chemistry to discover, that vegetables possess a most refined taste, a wonderful discrimination in the selection, and the most active chemical powers in the preparation of their food. It is in vain to search for any single article as the "food of plants" —their tastes are as various as the taste of man—they invariably seek for those things which they like best, and if they cannot find them, they will take what they can get. Indian Corn in the vegetable kingdom, is like swine in the animal; it feeds indiscriminately and voraciously on all the food it can procure, and its growth and product is in proportion —while the more delicate mint is satisfied with water alone, from which it extracts its small portion of food. The seed of a vegetable may be considered the the magazine or granary in which is contained the germ of the future plant, and a requisite supply of food to support it. In establishing itself in the earth, the germ in many *comparatively large seeds*, is so small, as to escape the power of the naked eye.—What then is the vision of man, when compared with that power which creates in an *invisible seed*, an embryon plant, perfect in all its parts, perhaps an hundred times smaller than the seed itself? The grain preserves and defends the germ from injury until placed in its proper sphere of action. The earth then furnishes food to it, by its power of absorption, which it naturally exacts as soon as it comes in contact with moisture. When it has taken in a sufficient quantity of water, the germ commences its operations by decomposing a part and appropriating to itself the oxygen, it gains strength and bursts its cell—it now finds itself in the presence of earth and air.* It puts forth its fibrous roots in quest of more substantial food among the mineral and saline solutions in the earth, and separates, with unerring fidelity, those which are required for the formation of the plant: in the mean time its head rises towards the heavens, and bursts the surface of the earth; the voluntary expansion of its leaves seems to offer praise to its creator; the sun stamps upon it his brilliant colours, and gives the flower its beauty; by his heat, the plant prepares its oils, gums and balsams; and in return, gives to the light its oxygen (which, for ought we know, may be the support of the sun.) The winds agitate the plant, and often threaten to carry away the beautiful superstructure; while its motions indicate to the root below, that it is in danger. The elder roots grasp with firmer strength the earth and send forth an increased number of fibres, which collect materials and increase the growth of the plant. These operations go on until the fruit is produced, when the plant resigns itself to indolence, and delivers to the hand of man the result of its labours. Some are permitted to resume their action after delivering to the earth their fruit and leaves; but the greater number sink and furnish substance for the growth of future plants: this is the unvaried round of matter, it lives, and dies, to fill some other life.

A. B. M.

* It is usual to consider the presence of the air as above the earth, but tillage extends it beneath the surface from 1 to 12 inches; hence the difference in the fertility of the same earth, cultivated and uncultivated; the presence of the atmosphere being requisite for vegetation as soon as the germ bursts the seed.

Extracts from a Compendious Dictionary of the Veterinary Art.

[*Continued from No.* 22—*p.* 174.]

ÆGYPTIACUM. The following is the method of making this liniment, so much used by farriers as a detergent in foul ulcers. Take five ounces of powdered verdigris—one pound of honey, and seven ounces of vinegar—boil all together, until it is of a deep red colour and as thick as honey.

AGE. A horse's age may be known by the front teeth of the lower jaw until he is in his eighth year, after that some judgment may be formed of his age by the front teeth of the upper jaw until he is about twelve or thirteen. These latter marks, however, are not to be depended upon like the former; but if, at the same time, the horse's countenance be considered, with some other marks we shall point out, an experienced person will be seldom led astray by them. When a colt is foaled, he has no teeth in the front of his mouth, but in a few days two above and two below make their appearance, and soon after them four others; after this, it is generally three or four months before the corner teeth, as they are termed, appear. These twelve teeth in the front of the mouth, are small and white, and continue without alteration until the colt is about two years and a half old, when he begins to shed his teeth. The two front teeth, above and below, being the first that made their appearance, are the first that fall out;—the new or permanent teeth, distinguished also by the name of horse's teeth, are considerably stronger and larger than the foal or colt's teeth. Between the third and fourth years, the two teeth next them, above and below, fall out, and are replaced in like manner: and between the fourth and fifth, the next or corner teeth are changed. The horse is now said to have a full mouth of permanent teeth. During the fourth year, the tusks or tushes appear; though sometimes, but rarely, they appear before the fourth year. The four front teeth arrive at their full size in two or three weeks, but the corner teeth do not grow so quickly, being at first but just above the gums, and filled with flesh on the inside. At five, this fleshy appearance is lost, but these teeth continue for some time much less than the others, and they seldom lose their shell-like-appearance until five and a half, when they have a cavity of a dark colour on their upper surface, like the other teeth. At six years, the dark coloured cavity is much diminished, appearing something like the eye of a bean, that has advanced in length; still the mark or cavity is very conspicuous. At seven, the corner teeth have become a little longer, and the mark smaller. At eight

the mark is lost. After this period, you judge of the age by the marks or cavities in the upper teeth.—About ten, the two front teeth have lost their marks, the two next have but little left, but in the corner teeth they are readily seen; but these gradually wear out, and during the twelfth year are totally erased. The tushes, like the teeth, are gradually changing their form: at first they are small, sharp and shell-like, having a remarkable concavity on their inner surface, but gradually become larger and longer:—the concavities on their inside also lessen: about eight they are nearly lost. At about twelve, sometimes earlier, the inside of the tush begins to approach towards a round form, and after that gradually becomes quite round, blunt at the top, and of a yellow colour. About the age of fourteen or fifteen white hairs often appear above the eyes, and gray horses become lighter in colour, and when very old they become white. The teeth of horses as they advance in years, become longer and more oblique in their position, they acquire also a yellowish colour. The figures I have annexed to this article may be found a useful remembrancer by those who wish to learn the method of discovering the horse's age by the mouth; that is, it may enable them to recollect the progressive changes which the teeth undergo; nothing, however, can make them familiar with the subject, but an attentive and frequent examination of the horse's mouth. Horse-dealers are said to practise numerous artifices in order to decieve the inexperienced with respect to a horses' age. One of them consists in pulling out the corner teeth of a four year old to make him appear five; for when the corner teeth are thus removed before their time, they are soon succeeded by horse's teeth: this artifice is often practised. Another trick is termed *bishoping*; that is, making artificial marks in the corner teeth when the natural marks are worn out. The first artifice may be detected by the want of tushes; the second by the want of resemblance between the natural and artificial mark, the state of the tushes, and general appearance of the teeth; in horses past twelve, the marks in the upper teeth also may assist in its detection. When a horse becomes gray over the eyes through age, some fine powder of a suitable colour may be readily procured to conceal it. When the pits over the eyes are remarkably sunk and hollow, it is said that a small incision is made in the skin, and the smallest tobacco-pipe stem, or quill, introduced, and the membrane underneath inflated, so that the hollow parts are filled up with air; but this, I believe, is seldom if ever practised; and as to filing down the teeth, it is impracticable.

[*To be continued.*]

THE FARMER.

BALTIMORE, FRIDAY, SEPTEMBER 3, 1819.

Early Corn and Talavera Wheat.

We have been kindly promised a small quantity of early *Canada Corn*, which it is said will ripen six weeks sooner than any other—also some *Talavera Wheat*, in the straw. In the disposal (which is always gratuitous) of these and other rare seeds or grain, we shall give the preference to applications from *Agricultural Societies*, not only because it will be likely to insure the widest, most equitable and judicious distribution, but because we are desirous to evince, in our humble way, a sense of the great advantages resulting to the country from the establishment of these patriotic associations.

We have had several applications for *Guinea Grass Seed*, which we should be very happy to gratify, but we have not been able to procure any. The plants sent us from a friend in the District of Columbia, are growing finely; but we apprehend it will not succeed in a climate so far North as this. The frost will probably overtake it. We hope ample experiments will be made.

Worthy of Notice.

Irish and Sweet Potatoes have been selling in this market for some weeks past, and do still, at the rate of *two dollars per bushel*. Tomatoes, at 10 cents per dozen—Peaches, at 37 1 2 to 50 cents per peck—Cabbages, large, 10 to 12 1-2 cents per head. ☞ At the same time, there are thousands upon thousands of acres of uncultivated land in all directions, more especially south and west, within a few miles of the town, which might be bought for from 10 to 20 dollars per acre, and each acre if well prepared, and judiciously planted and cultivated, would produce as many of any one of the above articles as would yield several hundred dollars!

TO THE EDITOR,

dated—*Albright, N. C. August* 18, 1819.

We are uncommonly dry in this section; most of our corn fields are irretrievably lost—some chance fields are middling. Wheat crops were never better, nor safer housed. Garden vegetables that receive their support from the earth are lost. We have just sown our turnips, and fear they will fail. Fruit in abundance, and very fine. The streams here were never known to be lower by the oldest person living amongst us—Thermometer higher than usual at this season. Money uncommonly scarce, and produce low—a monstrous disease in the neighbourhood of Banks, without an anticipated remedy—and it is greatly feared, that the disease has progressed so far into the vaults of the banks, that their death will be certain. Agriculture an agreeable topic generally.

I hope the above evils will lead to great objects—the improvement of the soil. I hope to be able, in a few years, to convince some of my old friends, that it would be better for them, to abandon a profession (as I have done) and live by the bountiful products of a farm.

POETRY.

West River, August 25, 1819.

Dear Sir,—The enclosed song, written by a gentleman distinguished for his practical knowledge of Agriculture, as well as talent for Poetry, seems particularly suitable for insertion in your valuable paper, for which purpose it is transmitted, by

A SUBSCRIBER.

To John S. Skinner, Esq.

THE LEAF OF TOBACCO.

Tune—*Sprig of Shelalah, &c.*

LET the Irishmen boast, they're the lads for the ladies,
That fighting and loving their own native trade is—
While the Shamrock so green shades the bosoms so bold:
But the Shamrock, when gather'd, will quickly decay,
'Tis honor'd one moment, the next thrown away:
Now the plant on Patuxent, we rear as our boast,
When the most it is faded, we honour it most—
'Tis the leaf of Tobacco, as yellow as gold!

We have heard, tho' to us it appears rather silly,
The knights of Navarre, for the sake of a lilly,
Would rush on to death, or to vict'ry of old:
No doubt, but they thought, that this beautiful flower
O'er the hearts of the damsels had wonderful power;
But the *Knights of Patuxent* need never to sigh,
If they can but hold up, to a fair one's bright eye
The leaf of Tobacco, as yellow as gold.

The Thistle of Scotland has oft taught her foemen,
That it can be well roughly handled by no men,
Without their soon wishing they ne'er had ta'en hold;
Thus may all, who would wish our lov'd plant to decry,
Whether meaning to smoke it, to eat it, or buy,
Soon find it too high for their fingers to bear,
And that they'll have the profit alone, who shall rear
The leaf of Tobacco, as yellow as gold.

WHOOPING COUGH.

As Whooping Cough prevails among children, and has in several instances proved mortal, it is important to be generally known, that, after the disease is fully ascertained, inoculation for Cow Pox will certainly arrest it. The attention of parents is invited particularly to the consideration of this fact; because, in addition to the danger from Whooping Cough, especially in young children, it has been accompanied, in some of the cases which have already been fatal, with distressing bowel complaints, which are usually prevalent at this season of the year. It is an absurd opinion, that Whooping Cough must be left to have its course, but in consequence of this opinion it may happen, that a physician will not be consulted until it is too late to have recourse to inoculation with any prospect of success. If proof be neceseary to convince the incredulous, the reported cases of some of the best physicians in the country afford abundant evidence of the utility of the practice. They advise to inoculate as early as the second or third week from the commencement of the Cough, and in extreme cases, earlier. *Hamp. Gaz.*

ÆRIAL COMBAT.

A few days ago, says a late London paper, a mason and a labourer, both men of prowess, quarrelled on the scaffolding of a spire now erecting on the tower of the new church. A pugilistic encounter took place, and the two fearless combatants fought near the very summit of the unfinished building, where it was not quite a yard in diameter. The scaffolding and railing which encircled it, include a space of about 80 inches in diameter; and here the champions buffeted each other lustily at the height of 176 feet above the surface of the ground. Some knock down blows were given and received, but fortunately neither of the warriors were thrown out of the ring, or, as the technical phrase is, over the ropes. It is indeed to be feared, that if they had been precipitated to mother earth, she would not have received them so kindly as she did her favourite son Antaes. We do not think a quarrel of this nature was ever before decided by fisticuffs, in a similar situation, unless, perhaps, at the memorable dispute betwixt the brick-layers, masons, &c. who were engaged in the building of Babel. It is said, that the victor means to challenge Crib, Carter, and every other British bruiser who may take up his gauntlet, to fight him on the top of the monument of London, where he will give him such a cross buttock, as will send him headlong to the street. The only men in modern times, who have equalled these genuine successors of Hercules, Eryx, and Entellus, were Massena and Suwarrow, who fought in the Swiss mountains, three-fourths of a mile above the clouds, and saw the lightning break, and heard the thunder roll, full many a fathom below the scene of action.

PRINTED EVERY FRIDAY AT $4 PER ANNUM,
FOR JOHN S. SKINNER, EDITOR.
At the south-west corner of Market and South streets
BALTIMORE.